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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER	
MENON, KRISHNAN S	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARKUS GLOECKLE and MARKUS HERNIER

Appeal 2009-2983
Application 10/725,858
Technology Center 1700

Decided:[1] May 18, 2009

Before EDWARD C. KIMLIN, ADRIENE LEPIANE HANLON, and KAREN M. HASTINGS, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-7. We have jurisdiction under 35 U.S.C. § 6(b).

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Claim 1 is illustrative:

1. A method for supplying a fuel, comprising:

splitting-up the fuel at a separation device into a first fuel fraction in the form of a retentate and into a second fuel fraction in the form of a permeate that is aromatics-enriched; and

acting upon the separation device by a scavenging gas on a permeate side, so that a mixture of a fuel permeate and the scavenging gas is produced.

The Examiner relies upon the following references in the rejection of the appealed claims (Ans. 3):

Waycuilis	5,149,340	Sep. 22, 1992
Ueda	2002/0139111 A1	Oct. 03, 2002
Partridge	6,972,093 B2	Dec. 06, 2005

Appellants' claimed invention is directed to a method for supplying a fuel which entails splitting-up the fuel at a separation device into first and second fuel fractions in the form of a retentate and permeate, respectively. The permeate is aromatics-enriched. A scavenging gas acts upon the separation device to produce a mixture of the fuel permeate and scavenging gas.

Appealed claims 1-4 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Waycuilis. Claims 1-7 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Partridge. Claims 1-7 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ueda in view of Waycuilis.

Appellants do not present separate arguments for any particular claim on appeal. Accordingly, the separately rejected groups of claims stand or fall together.

We have thoroughly reviewed the respective positions advanced by Appellants and the Examiner. In so doing, we find that the Examiner's § 102 rejection over Waycuilis is not well founded. However, we will sustain the Examiner's other two rejections for essentially those reasons expressed in the Answer. Our reasoning follows.

We consider first the § 102 rejection over Waycuilis. The appealed claims define a method wherein a separation device separates a fuel into an aromatics-enriched permeate. Although Waycuilis is directed to a separation device which separates hydrocarbons, the Examiner acknowledges that Waycuilis provides no disclosure that the retentate produced by the separation device is aromatics-enriched, as presently claimed. Without such a teaching, we agree with Appellants that Waycuilis does not describe every feature of the claimed invention and, therefore, does not describe the claimed invention within the meaning of §102. The Examiner's statement that "the reference teaches the generic process of removing impurities from hydrocarbons" (Ans. 4, last para.) falls far short of describing the claimed step of producing a retentate that is aromatics-enriched. Also, the Examiner's finding that "[t]he apparatus of the reference is inherently capable of performing the separation claimed" (Ans. 5, penultimate para.) is irrelevant to the claimed invention which defines a method, not an apparatus.

We now turn to the Examiner's rejection of all the appealed claims under § 102 over Partridge. Partridge, like Appellants, describes a method

of using a separation device to separate an aromatics-enriched retentate from a fuel. Appellants also do not dispute the Examiner's factual determination that Partridge recirculates an air-containing vapor to the permeate side of the membrane which acts as a scavenging gas. It is Appellants' contention that the liquid fuel components of Partridge effuse to the permeate side of the membrane and cover the membrane surface such that the recirculating gas "would not act upon the membrane, which is inaccessible to the gas due to the liquid layer of fuel components" (Br. 5, fourth para.). Appellants maintain, therefore, that Partridge does not describe the claimed step of having a scavenging gas act upon the separation device.

We are not persuaded by Appellants' argument since Partridge provides no disclosure that liquid fuel on the permeate side of the membrane entirely covers the membrane surface such that the recirculating gas is totally prevented from contacting the membrane surface. As acknowledged by Appellants, Partridge maintains a pressure on the permeate side of the membrane that is lower than the vapor pressure of the effused aromatics such that they are continuously removed from the surface as a fuel vapor. Hence, the immediate vaporization of the fuel would enable some of the recirculating gas to contact the surface membrane. Also, Appellants have not rebutted the Examiner's finding that the pervaporation of Partridge "is a process in which the permeating material permeates through the membrane in the vapor phase due to the partial pressure difference between the feed side and the permeate side" (Ans. 9, last full sentence). In addition, we agree with the Examiner that inasmuch as Appellants have not defined any particular structure for the claimed "separation device", the separation

device of Partridge is not limited to the separation membrane but, rather, includes the device in its entirety.

Finally, we consider the rejection of all the appealed claims under § 103 over Ueda in view of Waycuilis. Appellants do not dispute the Examiner's finding that Ueda, like Appellants, discloses a method for supplying a fuel comprising splitting-up the fuel at a separation device into a first fuel fraction and a second fuel fraction wherein the second fuel fraction is in the form of a permeate that is aromatics-enriched. The Examiner recognizes that Ueda does not teach the use of the claimed scavenging gas. However, Waycuilis discloses the use of a separation membrane for separating hydrocarbons, as well as the use of a scavenging or sweep gas for providing more efficient separation, reduced membrane area and reduced losses (*see* col. 8, ll. 18-29 and col. 4, ll. 25-61). Accordingly, we find no error in the Examiner's conclusion that it would have been obvious for one of ordinary skill in the art to employ a scavenging gas in the separation device of Waycuilis.

Appellants argue that Ueda discloses "a system for separating fuel into fractions [whereas] Waycuilis, in contrast, teaches a process which separates hydrocarbons" (Br. 6, fourth para.). However, as pointed out by the Examiner, fuels are hydrocarbons, and we are satisfied that one of ordinary skill in the art would have reasonably expected that the advantages of using a scavenging gas in a hydrocarbon separation process would also accrue to a fuel separation process.

We also find no merit in Appellants' argument that if the system of Ueda was provided with a scavenging gas, Ueda's use of a high and a low

pressure side of a membrane would be lost (Br. 6, penultimate para.).

Waycuilis expressly teaches the following:

> The introduction of sweep gas into the space within the membrane increases the back pressure on the permeate side of the membrane, which would normally be thought to be counterproductive to the passage of impurities from the hydrocarbon mixture through the membrane. In fact, however, the dilution of the permeate gases by the sweep gas actually reduces the partial pressure of the permeate constituents so that the difference in partial pressure from the feed side of the membrane to the permeate side is increased.

(Col. 4, ll. 25-34).

As for Appellants' argument that the vacuum pump of Ueda would be destroyed under a continuous supply of sweep gas stream, we agree with the Examiner that Appellants' argument is devoid of factual support and is, therefore, of little probative value.

As a final point, with respect to the § 103 rejection, we note that Appellants base no argument upon objective evidence of non-obviousness, such as unexpected results.

In conclusion, the Examiner's § 102 rejection over Waycuilis is reversed, the § 102 rejection over Partridge is affirmed, as is the Examiner's § 103 rejection. Accordingly, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (2008).

AFFIRMED

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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004